DRAFT M E M O R A N D U M

To: **Joint Legislative Budget Committee**

From: **Chad Kirkpatrick, State CIO, GITA Director and Chairman**
Public Safety Communications Advisory Commission (PSCC)

Subject: **Recommendation for the Use of $2.2 Million RICO Funds**
For Communications Interoperability

Date: **September 22, 2010 (DRAFT Sept 15, 2010)**

The Joint Legislative Budget Committee (JLBC) approved GITA-PSIC Third Quarter FY2010 expenditures and progress in a letter dated April 21, 2010. In that letter JLBC requested an update on the plan for use of $2.2 million in FY 2007-2008 anti-racketeering funds. The Public Safety Interoperable Communications Office (PSIC) in the Government Information Technology Agency (GITA) has developed this recommendation as requested.

GITA-PSIC recommends the anti-racketeering funds be used to expand standards-based P25 communications capability in the southern region utilizing the Yuma Regional Communications System (YRCS) Master Site Controller and supported by the Arizona Department of Public Safety (DPS) upgraded digital microwave system. The proposal would:

- Expand coverage to 4 southern border counties enabling linkage between local and state systems.
- Deliver wide coverage for moderate financial investment - increasing 700 MHz digital coverage in the Southwest border region by approximately 6500 square miles
- Provide high level connectivity for existing and developing communication systems, thus increasing interoperability capabilities during multi-jurisdictional multi-agency response, recovery, and mitigation to critical incidents in high risk areas.

The proposal has been favorably reviewed by key partner agencies involved in communications interoperability – Arizona Department of Public Safety, Arizona Department of Transportation, and Arizona Department of Homeland Security – and their letters of support are attached to this memorandum. In addition, the proposal has been endorsed by the Southern Regional Advisory Council (SRAC) – letter of SRAC support is also attached. [DRAFT assuming favorable review: Finally, the recommendation was approved by the Public Safety Communications Advisory Commission (PSCC) at their open public meeting on September 21, 2010.]

We respectfully request a favorable review of this recommendation.

Funds

In 2007, the State legislature directed $2.2 million in FY 2007-2008 anti-racketeering funds to be used for "the detailed design of the long-term interoperability solution". *[Chapter 255, House Bill 2781, page 95.]* At the time, the PSIC and the Public Safety Communications Advisory Commission (PSCC) were housed at the Arizona Department of Public Safety (DPS). The FY2009 State budget passed by the Arizona State Legislature and signed into law in June 2008 transferred PSIC/PSCC from DPS to GITA. This transfer included the RICO funds, along with all other PSIC/PSCC funds. The transition was completed in October 2008.

Statewide Design & Plan

In 2006, DPS (on behalf of PSCC) commissioned a *Radio System Conceptual Design Report* which was completed and delivered on April 23, 2008. The Report calls for "a statewide trunked radio system based on Project 25 (P25) standards, which will provide operability and interoperability for state and local agencies. The (proposed) system is also able to use a high-level network interface to enable interoperability with other systems." In 2008, a successful demonstration project demonstrated console patch and inter-system connectivity as potential solutions to meet the interoperable communications needs of the State. The cost of the system to be developed based on the conceptual design report was estimated in 2008 at $217 million (not including separate funding needed to upgrade the State's microwave system from analog to digital technology).

In January 2010, the PSCC approved an updated Statewide Communications Interoperability Plan (SCIP). The SCIP has 12 strategic initiatives to advance interoperability. At a high level the SCIP describes the linking of regional systems with state systems and with one another to facilitate long term interoperability.

The State has not identified funds to enable implementation of the complete system contemplated by the conceptual design. A detailed design would therefore not be a timely use of the RICO funds. However, the State is making significant progress on component parts of the statewide system contemplated by the conceptual design. The RICO funds could provide tremendous benefit to advancing communications interoperability in keeping with this long term system design as outlined in this recommendation. Therefore, GITA-PSIC proposes use of the RICO funds consistent with Arizona's SCIP and the conceptual design to advance communications interoperability.

Development of Recommendation

In keeping with its statutory mandates and operating protocols, GITA-PSIC followed the following steps in developing this recommendation:

- April 21, 2010 – Request input from PSCC regarding use of RICO funds
- April 23, 2010 – Receive initial proposal from YRCS
- May 18, 2010 – Request input from Statewide Interoperability Executive Committee (SIEC – a standing technical and operational committee of the PSCC) regarding use of the RICO Funds
- May 13, 2010 – Received more detailed proposal from YRCS.
- June 8, 2010 – Consult with Arizona Department of Public Safety (AZDPS) as required by statute regarding possible use of RICO Funds. In addition, consult with ADOT and AZDOHS. All favored the YRCS proposal as:
    - Supportive of the long term plan for operability and interoperability for the State
    - Immediately beneficial to key public safety state agencies
    - Building on the State's financial investment in the Microwave upgrade in the Southern part of the State
- June to September 2010 – Consult with public safety partners regarding possible use of RICO funds and develop this Recommendation.
- July 20, 2010 – Second request to PSCC requesting input regarding possible use of RICO funds, including possible use as proposed by YRCS.
- September 15, 2010 – Review this draft recommendation with AZDOHS, AZDPS and ADOT before submittal to PSCC.

- [DRAFT: September 21, 2010 – This recommendation reviewed and approved by the Public Safety Communications Advisory Commission (PSCC) at their open public meeting.]
- September 22, 2010 – Submit Recommendation approved by PSCC to JLBC.

Proposed Detailed Design Build-out

GITA-PSIC received one substantive proposal for use of the RICO funds – a proposal from YRCS (Attachment 1). Alternative uses of the funds suggested by staff or stakeholders were also evaluated by staff (Attachment 2). The YRCS proposal is consistent with the conceptual design report and aligns with SCIP related projects currently endorsed by the PSCC.

Activated on May 31, 2007, YRCS is a standards based P-25 shared system. The system was built with nearly $17 million in local funds and federal grants. Users of the system include public safety and service agencies for:

- Local – City of Yuma, Yuma County *(5,522 square miles)*, City of Somerton, City of San Luis, Town of Welton
- Tribal – Quechan Indian Tribe, Cocopah Indian Tribe
- Federal – FBI, ATF, USCBP (vhf), Marine Corps Air Station, US Army Proving Grounds, Dept of Interior *(in process)*
- State Agencies – DPS (uhf), DEMA (State EOC), ADOT
- NGOs – Rural Metro, Air Medvac, Yuma Regional Medical Center
- Other States – Key exchange IGA with San Diego RCS and Imperial Valley Emergency Communications Association

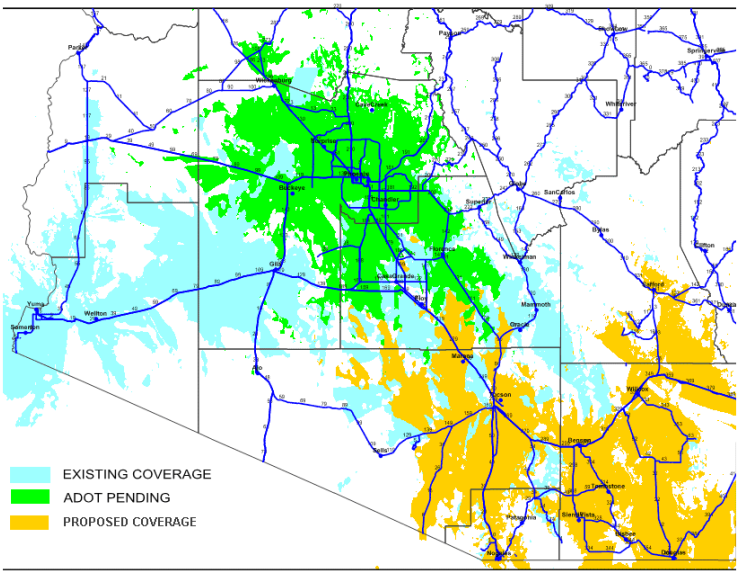
The YRCS proposal calls for a cooperative effort by YRCS and DPS to deploy standards-based P25 communications capability at six key transmitter sites along the southern region supported by DPS' upgraded digital microwave system. The proposed Conventional Channel Gateways to be installed at each transmitter site would enable patching of conventional channels with trunked talkgroups across the UHF, VHF and 700/800 MHz radio spectrum bands. This proposal would provide high level connectivity for existing and developing communication systems, thus increasing interoperability capabilities during multi-jurisdictional multi-agency response, recovery, and mitigation to critical incidents.

The proposed detailed design build-out is modeled after an existing, successful partnership between DPS and the YRCS. DPS operates on a UHF system and needs to connect with local agencies operating on VHF and 700/800 MHz systems. Therefore, DPS entered into a partnership with YRCS to use its master site controller in regard to P25 sites built by DPS and connected by DPS' microwave link at South Mountain (Phoenix) and Mount Lemmon (Tucson). These sites expanded the footprint of the YRCS system and enable interoperability between DPS and YRCS agencies. DPS joint operations taskforces utilize the expanded system today.

The Arizona Department of Transportation (ADOT) received approval from the Information Technology Advisory Council (ITAC) on August 25, 2010 to begin a similar project in partnership with YRCS for 2 other sites – White Tanks and Thompson Peak. ADOT's current system is end of life and utilization of the YRCS partnership between YRCS and DPS is enabling ADOT to jumpstart system replacement for a significantly reduced investment.

The six sites proposed for the detailed design build out are existing DPS transmitter sites that can be enhanced quickly – each site is already configured with battery banks, generators, building and towers as well as microwave connectivity to YRCS site controller. Recommended sites are located at:

1. Keystone Mountain
2. Nogales Hill
3. Texas Canyon
4. Mule Mountain
5. Bernadino Peak
6. Dos Cabezas



These sites would expand coverage to the four southern Arizona border counties enabling linkage between local and state systems and would increase 700 MHz digital coverage (for interoperability) in the Southwest border region by approximately 6500 square miles. (Attachment 3: Coverage Maps) Any operability usage of the system will need to be negotiated jointly with DPS and YRCS.

YRCS presented its proposal to Arizona Department of Homeland Security's Southern Regional Advisory Council (RAC) on June 18, 2010 and the SRAC endorsed the proposal as beneficial to its region.(Attachment 4: Support Letters)

Recommendation

We recommend the YRCS proposal for use of the anti-racketeering funds as we believe it will benefit Arizona as following:

- Build on existing investments:
  - Digital microwave upgrade in Southern Arizona ($8.6 million)
  - YRCS build-out through use of master site controller ($17 million)
  - Connection to DPS build out and ADOT planned build out ($5 million)
- Expand coverage to 4 southern border counties enabling linkage between local and state systems.
- Enable future linkage to PCWIN – Pima County Wireless Integrated Network – being built to similar modern communications specifications.
- Deliver wide coverage - increasing 700 MHz digital coverage in the Southwest border region by approximately 6500 square miles – for moderate financial investment
- Provide high level connectivity for existing and developing communication systems, thus increasing interoperability capabilities during multi-jurisdictional multi-agency response, recovery, and mitigation to critical incidents in high risk areas.

Expenditure Plan

The design configuration for the project was established by DPS and YRCS based on 2 other successful YRCS/DPS projects. The following ASTRO25 repeater equipment would be purchased for each of the six proposed sites:

- One (1) GTR Expandable Site subsystem with five (5) GTR 8000 Base Radios
- Two (2) Site Routers
- One (1) Aux I/O Module
- One (1) Tower Top Amplifier and Base Unit
- One (1) Conventional Channel Gateway (CCGW)

Each CCGW will provide four conventional interfaces to enable cross communications from analog radios to trunked talk groups. These CCGWs can be accessed utilizing existing interface cards and existing DPS microwave connectivity for trunked talk groups to conventional channel patch interfaces.

To support the orderly expansion of the system without negatively impacting existing DPS / YRCS operations, the project will first establish baseline interoperability for state agency users. In early 2011, the installation of the six additional sites will begin. GITA's PSIC Office would also establish the necessary governance structures regarding how, when and who can use the system for interoperability. This includes the development of governance agreements and the creation of interoperability channels. After the installation of the six additional sites, connections with the State Emergency Operations Center (EOC) and other strategic connections would be established.

After establishing baseline interoperability for state agency users, the system would then be expanded to support local agency use of the system. The programming of talk groups and installation of control stations at Public Safety Answering Points (PSAP) would help tie in local agencies to the system for interoperability purposes. Interoperability usage through tie in of dispatch centers will be enabled by DPS and YRCS. In addition, a hardware/software system upgrade would be completed to support future expansion of the system. This expansion could include the addition of a zone controller for DPS and/or additional sites in other locations.

The detailed cost breakdown is included below:

State Agency Interoperability	
Site Equipment 6 sites (5 channel sites)	$960,000.00
Antennas at 6 sites with coax and connectivity	$35,000.00
Install materials 6 sites includes antenna install and optimization	$120,000.00
Spares Kit for DPS	$25,000.00
Equipment for State EOC and other strategic connections	$25,000.00
Local Agency Interoperability and Expansion[1]	
Software system upgrade for master controller* to support future expansion of system to include potential add of zone controller and/or or additional site expansion*	$790,000.00
Hardware system upgrade for site servers*	$100,000.00
Training, travel, materials	$80,000.00
PSAP Control stations 10 (XTL1500 ps, ant, install)	$65,000.00
TOTAL BUDGET	**$2,200,000.00**

[1]* In the event that the necessary system upgrades can be funded through other sources, additional sites will be funded with the RICO funds instead in accordance with an updated plan to be submitted by GITA-PSIC with its JLBC quarterly report.

Installation will be provided by YRCS and DPS pursuant to site agreements under an existing master IGA. Training will be provided by YRCS staff. All equipment will be owned by DPS and on-going maintenance will be provided by DPS staff.

Governance - rules (similar to the Arizona Interagency Radio System Standard Operating Procedures) regarding how, when and who can use the system for interoperability – will be developed by PSIC in consultation with DPS, YRCS, SIEC and PSCC.

Proposed Timeline:

- September – October 2010 – Seek Approval of JLBC (GITA)

- October – December 2010 – Seek Information Technology Authorization Committee (ITAC) Approval (GITA/DPS); Develop Detailed Project Plans; Sign IGAs and/or Site Supplemental Agreements between GITA, YRCS and DPS

- 2011: 6 Site Build-outs (YRCS/DPS led effort); Governance Established (PSIC/PSCC led effort); Creation of Interoperability Zone Plan (PSIC/PSCC led effort)

- First Half of 2012: Once Governance is in place and sites are stable, Program Talk Groups for Local Agencies & Provide Training (YRCS led effort); Perform System Upgrade (YRCS led effort) (or Site Expansion)

Recommendation

GITA-PSIC recommends the $2.2 million in FY 2007-2008 anti-racketeering funds be used to expand standards-based P25 communications capability in the southern region utilizing the YRCS Master Site Controller and supported by the Arizona Department of Public Safety (DPS) upgraded digital microwave system.

The Government Information Technology Agency respectfully requests a favorable review by the JLBC of this planned use of $2.2 million in FY 2007-2008 anti-racketeering funds.

Attachments:
1. YRCS Proposal
2. Alternatives Considered
3. Coverage Maps (Existing; ADOT Pending; 6 Additional Sites)
4. Letters of Support - AZDOHS, AZDPS, ADOT, SRAC

Attachment 1 to RICO Funds Recommendation Memorandum
YRCS Proposal

ADVANCING ARIZONA'S PUBLIC SAFETY COMMUNICATIONS / ENHANCING OUR BORDER SECURITY

Prepared by Greg Wilkinson, City Administrator, City of Yuma

Available Funding

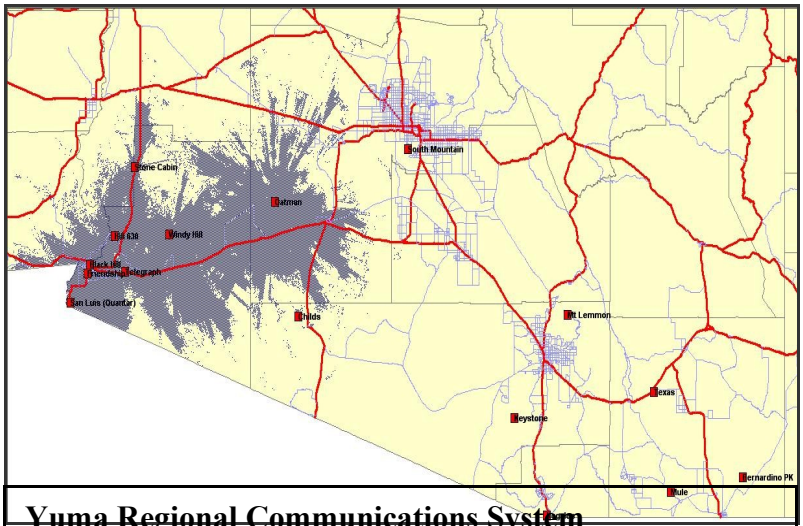
The Public Safety Interoperable Communications (PSIC) office in the Government Information Technology Agency (GITA) is responsible for advancing interoperable communications in Arizona. The PSIC office has $2.2M in RICO funding. These funds provide the opportunity to advance public safety communications in Arizona without impacting the state's general fund budget.

The Joint Legislative Budget Committee (JLBC) has requested an expenditure plan that addresses the expenditure of these RICO funds. This plan is due from the PSIC Office during the next quarterly review in August 2010.

Solution proposed to PSIC/PSCC

A cooperative effort by the Yuma Regional Communications System (YRCS), supported by the Arizona Department of Public Safety (DPS) state-wide microwave system (upgraded to digital technology in the Southern region), can deploy standards-based P25 communications capability at key transmitter sites along our southern region – enhancing our communications capability.

The Yuma Regional Communication System (YRCS) is a standards-based shared system that enables the highest level of interoperability among public safety and public service agencies.
Agencies with access to the system include:



Yuma Regional Communications System

FBI, ATF, USCBP, US Marshall, Marine Corps Air Station, US Army Yuma Proving Grounds, Quechan Indian Tribe, Cocopah Indian Tribe, Yuma Regional Medical Center, Rural Metro, Air Medivac (PHI and CareFlight)

Yuma County Sheriff, Police and Fire Departments from Cities of Yuma, Somerton, San Luis, and town's of Welton, Tacna, and Dateland. Other City County organizations such as Juvenile and Adult probation, Public Works, Parks, IT Dept's, Courts, and Health Dept amongst others.

YRCS Recognized as Most Effective Municipal/County Security Program

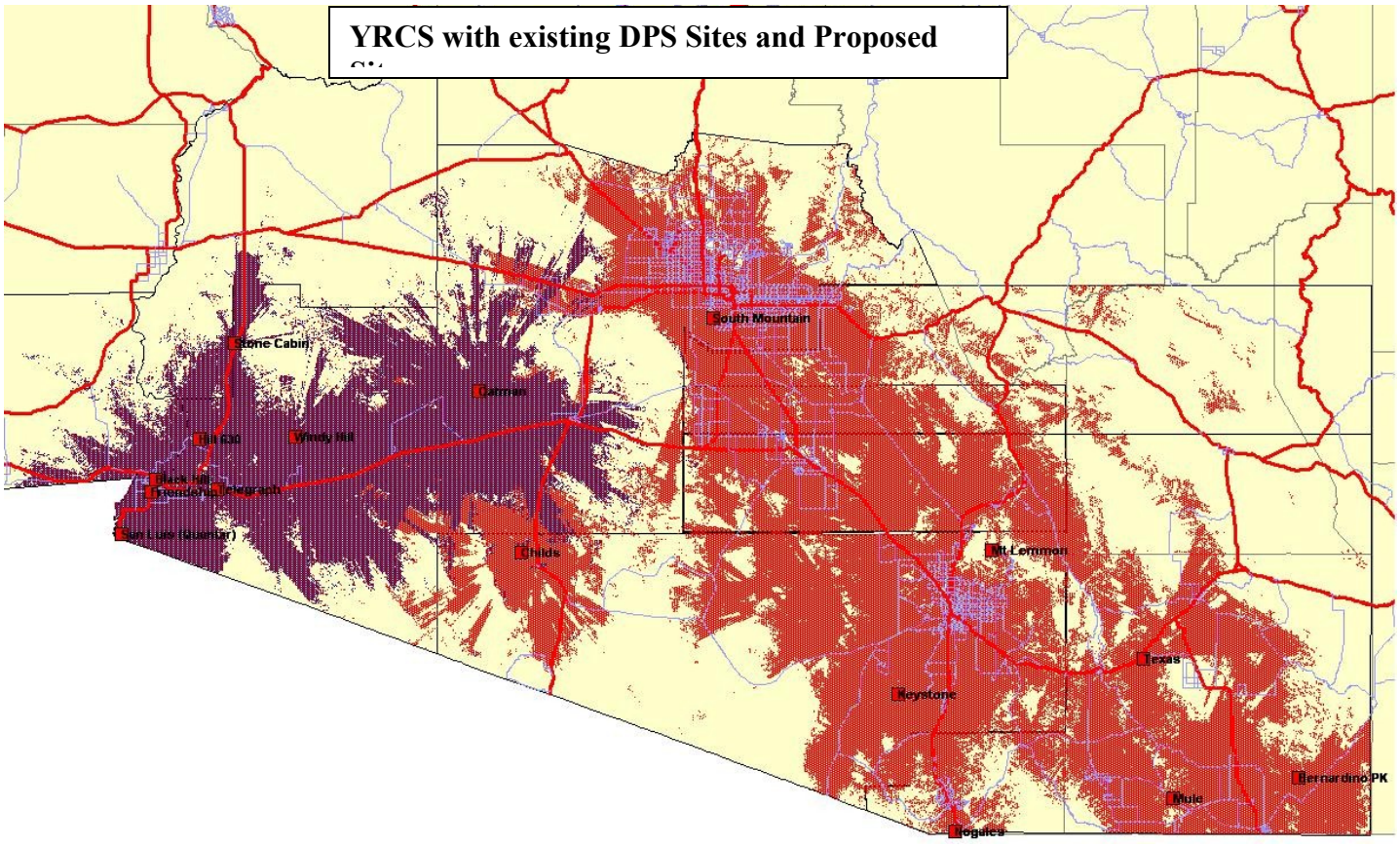
The YRCS has delivered dramatic improvement in both coverage and day-to-day operations for agencies throughout Yuma County. The project's success has led to the system being named the "Most Effective Municipal/County Security Program, Project or Agency Head" in the 2009 by the Government Security News in the U.S.

We can build upon the successful system in Yuma to enhance our overall communications capabilities in Arizona.

What We Can Achieve

Leveraging the use of existing standards-based systems will:

- Expand operability and interoperability in our high risk areas
- Deliver the most coverage for the dollar expended
- Utilize the State's allocation of the new 700 MHz public safety spectrum



This enhancement can be completed in less than a year with no impact on the state's general fund budget.

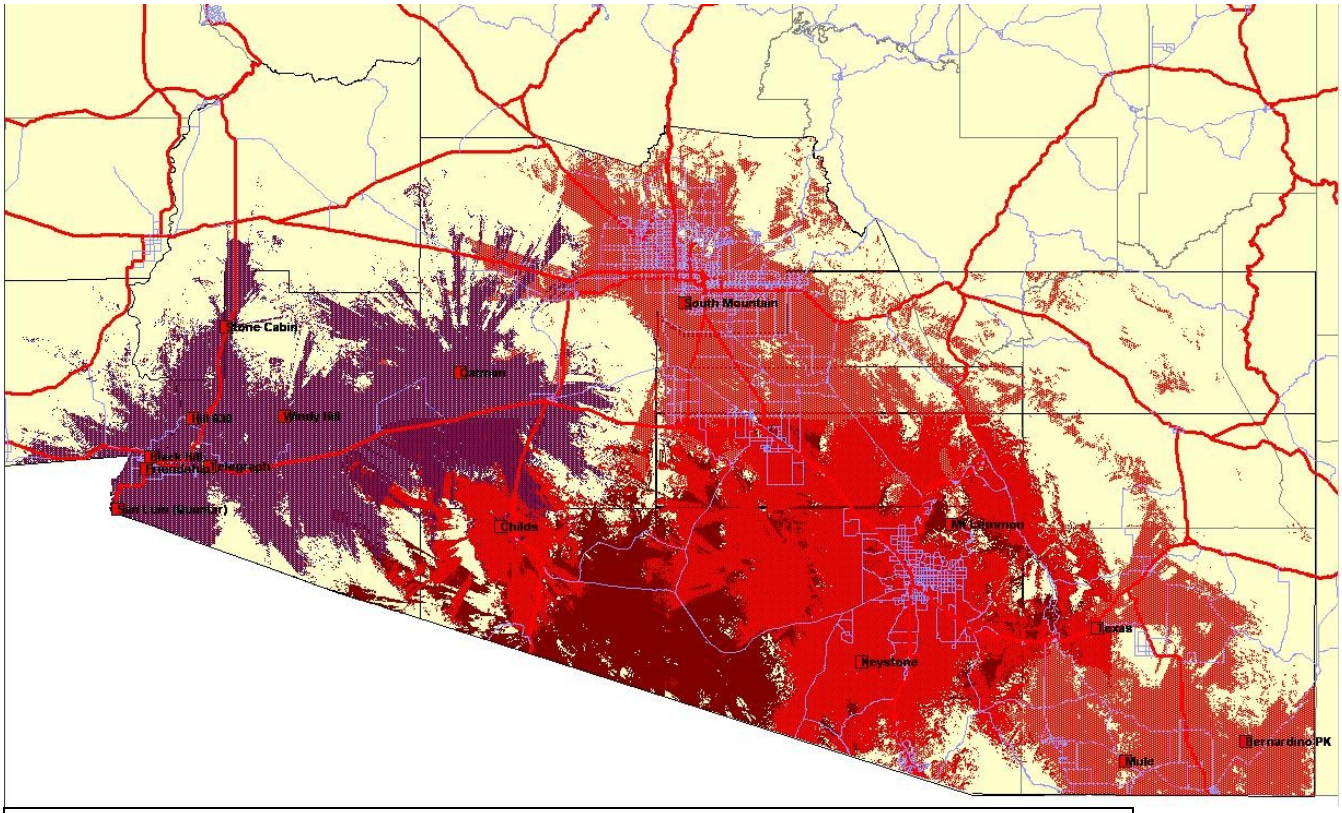
The Plan

Add P25 700 MHz standards-based communications sites at six existing DPS transmitter sites.

These six sites in combination with two sites already constructed by DPS (using federal interoperability homeland security grants) will provide a near continuous communications capability from Yuma across Phoenix and across our Southern Border. All sites will tie into YRCS existing master site controller. System capabilities will additionally allow connectivity to local radio systems to provide interoperability while also providing operability to many agencies. Additionally with the system in place all four border counties could save millions by jumping direct onto a narrow-banded P25 system that is already in place.

Compatibility with Other Large Standards-Based Networks

Arizona is aware of the Phoenix system being compatible with Yuma but Pima County is building the Pima County Wireless Integrated Network (PCWIN) over the next couple of years which also utilizes the same standards-based communications architecture as the YRCS. When complete it will enable wide area communications capability along our Southern Border.



YRCS with existing DPS Sites, Proposed Sites and pending PCWIN Coverage

Technical Studies Have Been Completed

The Public Safety Communications Advisory Commission (PSCC) engaged independent, national systems engineering and consulting firms specializing in the planning, design, and implementation of state-of-the-art telecommunications systems to evaluate the state's requirements and provide recommendations:

Macro Corporation Report in 2001
Federal Engineering, Inc. Conceptual System Design of 2008

Both independent reports recommend a standards-based communications network utilizing the State's 700 MHz public safety spectrum allocation.

The Need for Immediate Action

Local governments and agencies throughout the State are investing in standards-based networks that maximize the potential for interoperability and sharing of resources.

We have the opportunity to further our communications capabilities.

The RICO funding should be allocated to enable the deployment of additional standards-based communications sites in support of our state-wide operability and interoperability. All equipment will be purchased by YRCS to expedite purchasing and provided to AzDPS under existing Intergovernmental Agreements (IGA). Equipment will be maintained and supported by AzDPS and YRCS as appropriate.

Everything is in place and ready to go to implement.

Additional Information

For additional information regarding this proposal, please contact Greg Wilkinson, City Administrator, City of Yuma at greg.wilkinson@yumaaz.gov or (928)373-5011.

Attachment 2 to RICO Funds Recommendation Memorandum
Alternatives Considered

In developing the Recommendation Memorandum GITA-PSIC evaluated the following alternatives:

1. Commission of a Design Study

Conceptual design studies for a statewide system have already been delivered (Macro Report 2001; Federal Engineering Report 2008). The detailed design of the YRCS proposal was developed by DPS and YRCS (in house) thereby saving the State considerable outside consulting fees for a design study.

2. Purchase of Additional Strategic Technology Reserve Type Assets (ACU 1000, STACs, IPICs, etc.)

We believe use of these funds for reserve assets is not aligned with their intended usage for a long-term interoperability solution for the State. Federal Homeland Security funds can be used for technology reserve purchases if additional such assets are needed.

3. Expansion of Arizona Interagency Radio System (AIRS)

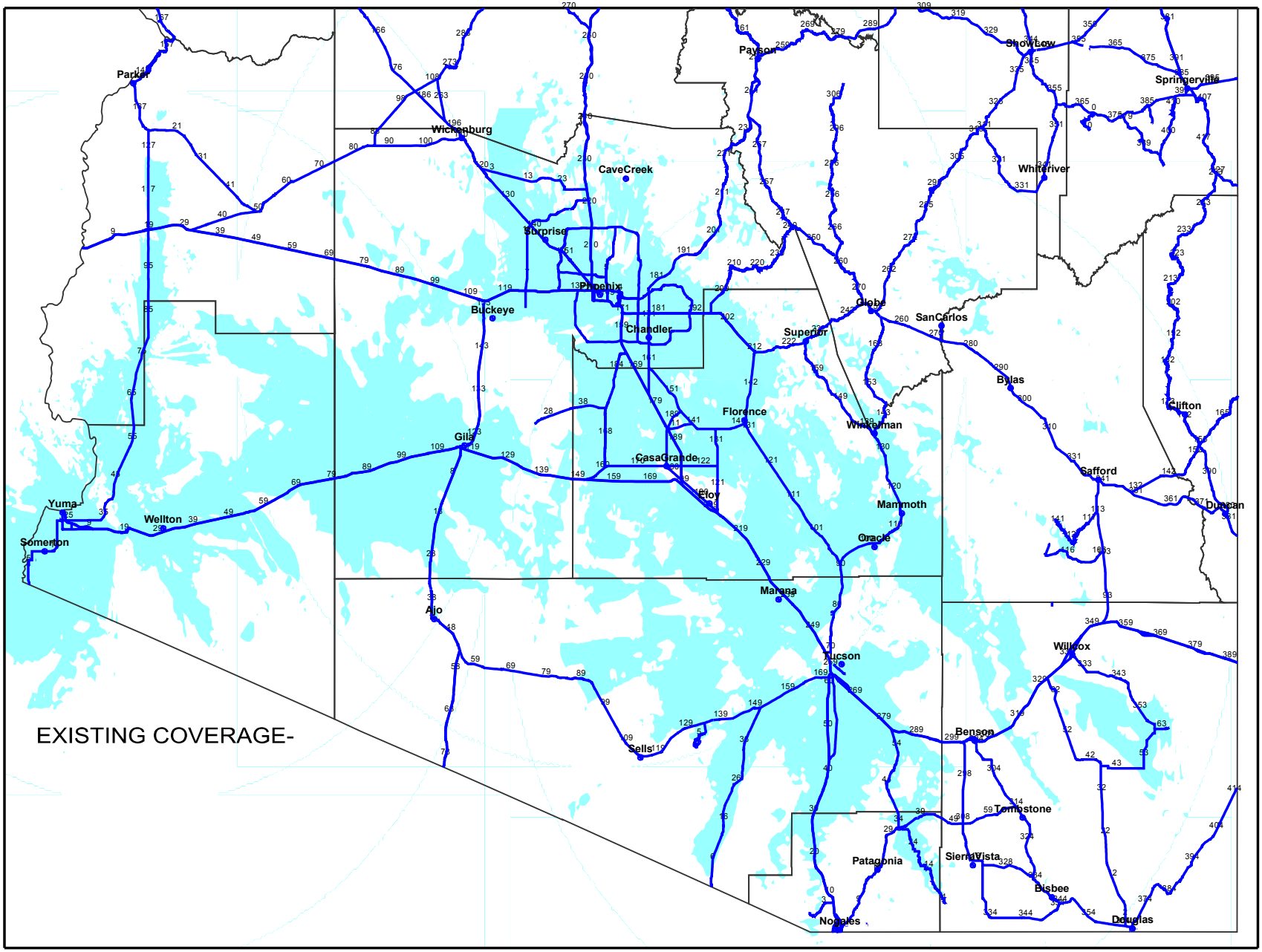
AIRS was built by DPS to provide some basic form of interoperability statewide. GITA-PSIC has supported expansion of AIRS usage through development of a Standard Operating Procedure for the system and a statewide training program which is currently being implemented.

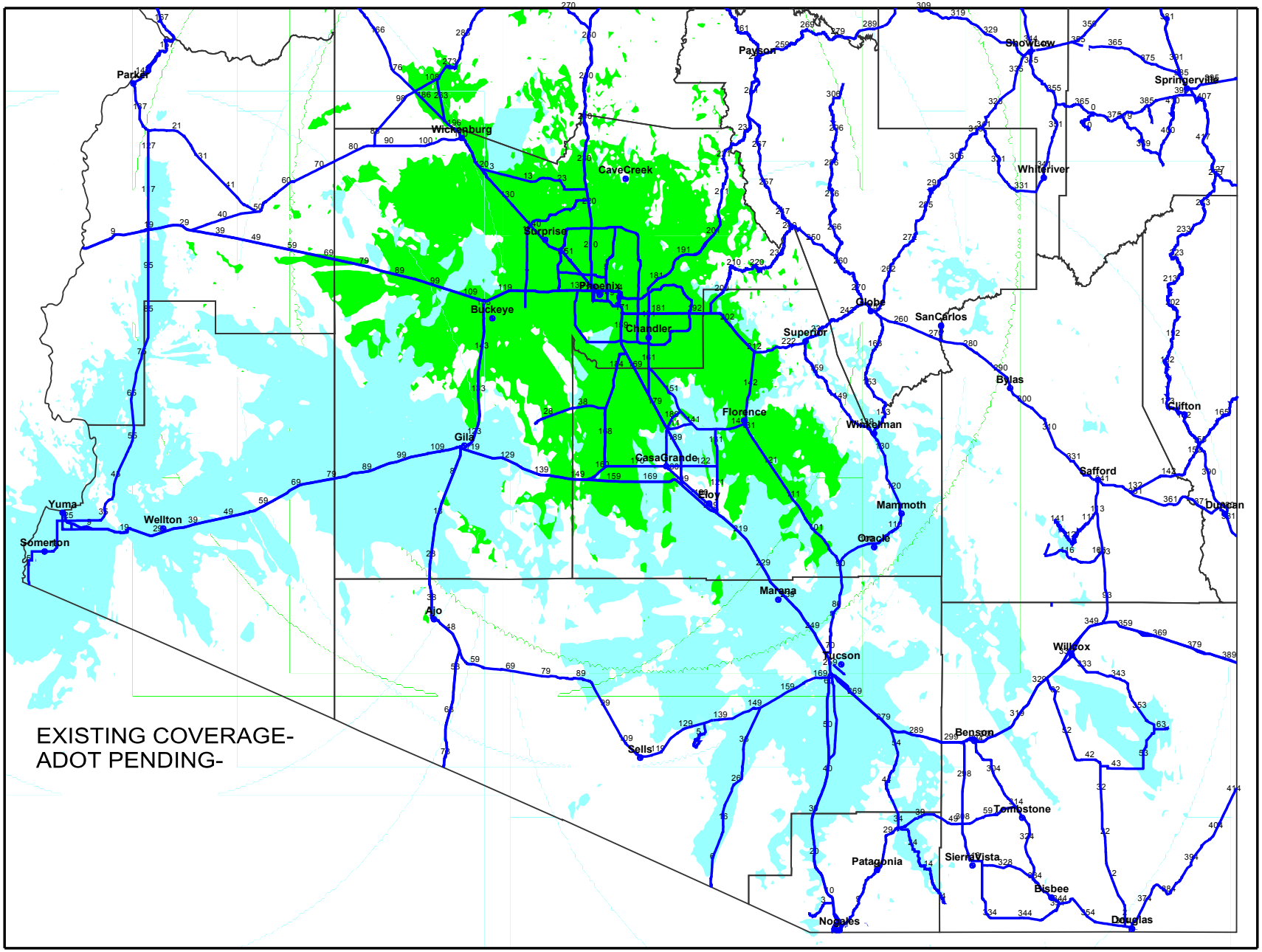
DPS has placed AIRS suites in locations where communication site space is available. From time to time local agencies are able to offer sites to enable further AIRS expansion. AIRS is a good mid-term solution until regional and state systems can be expanded and connected pursuant to the conceptual design. However, AIRS is a single channel solution. To expand beyond this channel would require identifying a vhf/uhf pair statewide which would be difficult with limited frequency availability. In addition a lot of engineering would be required to determine where AIRS could be expanded. Finally, the SIEC is planning to study AIRS usage and limitations and make recommendations to the PSCC regarding whether and how to expand AIRS. Until such an evaluation is complete, investing a significant amount of additional funds in AIRS would not be recommended.

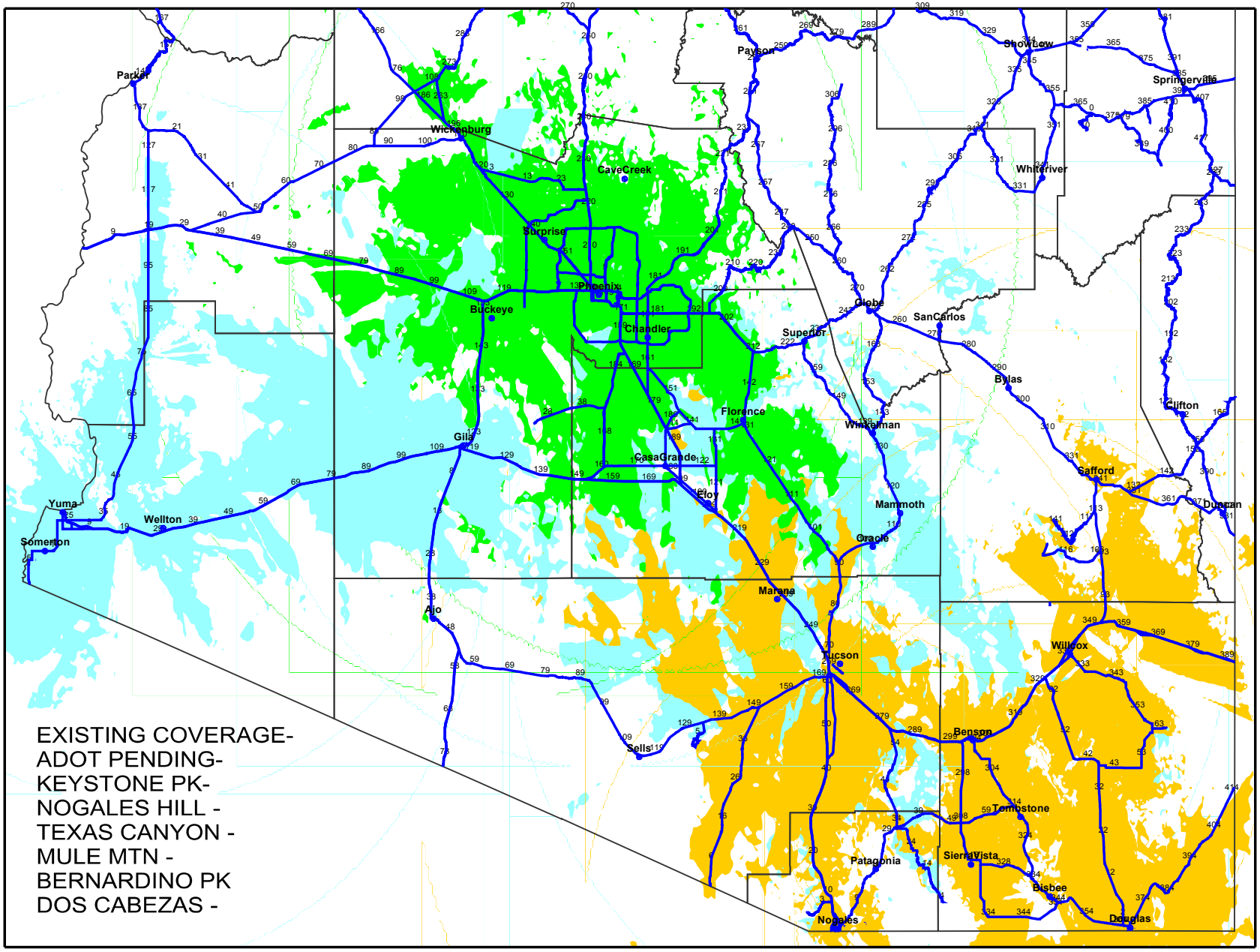
4. Purchasing of a Zone Controller for Phoenix Metro area

According to DPS, a zone controller is an advisable purchase as a backup to the YRCS controller as the YRCS / DPS / ADOT footprint expands. When such a controller is purchased the software running the YRCS system may need to be upgraded.

DPS and ADOT are looking to other funding sources to fund a second controller. A controller would cost $2.5 - $3 million with the accompanying software/hardware upgrade to the existing controller YRCS costing about $1 million.


EXISTING COVERAGE-
Parker
Wickenburg
CaveCreek
Surprise
Phoenix
Buckeye
Chandler
Payson
Showlow
Springerville
Whiteriver
Globe
SanCarlos
Superior
Florence
Whitetail
Gila
CasaGrande
Eloy
Mammoth
Oracle
Safford
Duncan
Clifton
Bylas
Yuma
Wellton
Somerton
Marana
Ajo
Tucson
Willcox
Benson
Tombstone
Sierra Vista
Patagonia
Bisbee
Douglas
Nogales
Sells


EXISTING COVERAGE-
ADOT PENDING-
Parker
Wickenburg
CaveCreek
Surprise
Phoenix
Buckeye
Chandler
Payson
ShowLow
Springerville
Whiteriver
Globe
SanCarlos
Superior
Florence
Gila
CasaGrande
Eloy
Bylas
Clifton
Safford
Duncan
Mammoth
Oracle
Whitlaman
Yuma
Wellton
Somerton
Maricopa
Ajo
Tucson
Willcox
Benson
Tombstone
SierraVista
Patagonia
Bisbee
Douglas
Nogales
Sells


EXISTING COVERAGE-
ADOT PENDING-
KEYSTONE PK-
NOGALES HILL -
TEXAS CANYON -
MULE MTN -
BERNARDINO PK
DOS CABEZAS -
Parker
Payson
Show Low
Springerville
Wickenburg
CaveCreek
Whiteriver
Surprise
Phoenix
Buckeye
Chandler
Globe
SanCarlos
Superior
Florence
Whitlaman
Bylas
Clifton
Gila
CasaGrande
Safford
Duncan
Yuma
Wellton
Somerton
Eloy
Mammoth
Oracle
Marana
Ajo
Tucson
Willcox
Benson
Sells
Tombstone
Patagonia
SierraVista
Bisbee
Nogales
Douglas